Missouri Nosocomial Infection Reporting Data:

Report to the Governor and General Assembly, December 2017

Missouri Department of Health and Senior Services
AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER
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2017 Report Overview

Background

In 2004, the Missouri legislature passed Senate Bill 1279, establishing the "Missouri Nosocomial Infection Reporting Act of 2004". The law requires hospitals and ambulatory surgical centers (ASCs) to report specific categories of healthcare-associated infections (HAIs) to the Department of Health and Senior Services (DHSS). This report summarizes data for the January 1, 2016 - December 31, 2016 time frame for central line-associated bloodstream infections (CLABSIs) and surgical site infections (SSIs). Statewide rates from calendar year 2011 were used throughout the report as a baseline for comparison. All significance tests were run at 95% confidence levels.

Reporting Hospital ICUs

- Coronary
- Surgical
- Medical/ Surgical
- Medical
- Pediatric
- Neonatal

Data Collection

CLABSIs are reported by hospitals for the six intensive care unit (ICU) types listed to the right. SSIs are reported by facility, instead of ICU type. Hospitals report SSIs associated with abdominal hysterectomy, hip repair, and coronary artery bypass graft surgery. ASCs report SSIs associated with hernia repair and breast surgery.

Reporting to the Public

The DHSS has developed a public website to report healthcare-associated infection rates to the public. The site provides the most current four quarters of data for viewing. At the time this report was prepared, SSI and CLABSI data for January 1, 2016 - December 31, 2016 were available on that website (http://health.mo.gov/data/hai/drive_noso.php). Historical data is housed at a separate web address (https://mhirs.dhss.mo.gov/haihistory/default.aspx) and shows data for calendar years 2006-2015.

Data Summary

Hospitals submit central line data for each ICU that meets DHSS reporting requirements. In all, 92 ICUs from 58 hospitals reported CLABSI data for calendar year 2016. Statewide infection rates for CLABSI were lowest in coronary and medical/surgical ICUs (0.7/1,000 central line-days). Pediatric ICUs had the highest statewide CLABSI rate for calendar year 2016, with a value of 1.7/1,000 central line-days.

Fifty hospitals and 15 ASCs reported SSI data during the same time period. The lowest SSI rate for hospitals overall was for hip prosthesis procedures (1.0/100 surgeries). The highest SSI rate for hospitals was associated with coronary artery bypass graft surgery (1.3/100). The breast surgery SSI rate was very low (0.14/100) and there were no reported SSIs for hernia repair.

Statewide CLABSI Rates by ICU Type

Coronary	0.7 per 1,000
Surgical	1.2 per 1,000
Med/Surg	0.7 per 1,000
Medical	0.8 per 1,000
Pediatric	1.7 per 1,000
Neonatal	1.4 per 1,000

Statewide SSI Rates for Hospitals

Abdominal Hysterectomy	1.2 per 100
Hip Repair	1.0 per 100
Coronary Artery Bypass Graft Surgery	1.3 per 100

Statewide SSI Rates for ASCs

Hernia Repair	0.00 per 100
Breast Surgery	0.14 per 100

Cautions

Infection rates are affected by a facility's level of resources and commitment to infection control, the severity of the illnesses treated, and the care with which it collects and reports data. A consumer who is choosing a facility for healthcare should consider the advice of their physician, the experience of facility staff, and all the other factors that are unique to his or her situation, in addition to the infection data reported on the DHSS website.

"…patients who were older, had been in the hospital longer at the time of the survey, were in a large hospital, had a central catheter in place, were receiving mechanical ventilator support, or were in a critical care unit had an increased risk of healthcare-associated infection."[1] -Magill, S.S., et al.

Background

Healthcare-associated infections (HAIs), also known as nosocomial infections, are infections that occur while patients are in a healthcare setting. Because of the seriousness of their conditions, patients treated in intensive care units (ICUs) have an especially high risk of HAIs. HAIs can severely aggravate an illness, lengthen hospitals stays, and spread to other individuals. HAIs continue to be a major public health problem in the United States and worldwide. "Guidance on Public Reporting of Healthcare-Associated Infections…" published by the Healthcare Infection Control Practices Advisory Committee (HICPAC) in 2005[2], reported that in hospitals alone, HAIs accounted for an estimated 2 million infections, 90,000 deaths, and $4.5 billion in excess healthcare costs annually. A 2010 study reported that adverse events cost Medicare an estimated $324 million in October 2008.[3] Roughly 1 in every 25 U.S. hospital patients will acquire at least one healthcare-associated infection.[1]

Data Collection

Procedures and HAIs are reported to DHSS according to 19 CSR 10-33.050, which became effective July 30, 2005. The reporting rule was promulgated under the authority of the revised statute that mandates data reporting by hospitals and ambulatory surgery centers (ASCs) (Section 192.667, RSMo). The data that are collected follow the recommendations of the infection control advisory panel established by law. The makeup of this panel, also stipulated by law, includes a statistician, a microbiologist, and representatives of consumers, physicians, infection control professionals, and regulators.

Those infections and procedures of a more serious nature and those that occur in a variety of hospitals and ASCs were considered for mandatory reporting. Hospitals and ASCs differ in what they report. Hospitals are required to report central line-associated bloodstream infections (CLABSIs) and surgical site infections (SSIs). The SSIs reported are those associated with procedures for abdominal hysterectomy, hip repair, and coronary artery bypass surgery. ASCs report only SSI data, and are limited to reporting infections associated with procedures for hernia repair and breast surgery. To provide denominators for the infection rates, hospitals and ASCs report every surgery performed in these selected procedure categories, whether or not the surgery resulted in an infection. Because patients in intensive care units are particularly at risk for HAIs, hospital reporting of CLABSIs is done for six specific intensive care units: medical, surgical, medical/surgical, coronary, neonatal, and pediatric. SSIs are reported by facility rather than by ICU type.

To ensure that the data being collected are reliable, the DHSS established reporting requirements for facilities. DHSS requires that only the hospital ICUs that had at least 50 central line-days in the prior year must report during the current year. Both hospitals and ASCs must report SSIs if they performed at least 20 of the specified surgeries in the prior year. Reporting is done through the Missouri Healthcare-Associated Reporting System (MHIRS), a web-based system developed by DHSS staff and the Information Technology Support Division of the Office of Administration. MHIRS allows facilities to enter HAI data directly into a DHSS database.

Registration for reporting by hospitals and ASCs occurs annually. Facilities report the number of central line-days per ICU and the number of relevant surgeries. This information determines which facilities will be required to report the selected indicators to the DHSS.

National Health Safety Network (NHSN)

In 2012, the Center for Medicare and Medicaid Services (CMS) began requiring that qualifying hospitals submit certain reports to them through NHSN, a national HAI tracking system maintained by the Centers for Disease Control and Prevention. Beginning in September 2012, the DHSS developed a way to download infection data for facilities which participate in the CMS program and submit data to NHSN. The DHSS developed a method by which department staff could query the NHSN system and download that data for inclusion in the MHIRS data tables for the quarterly public reports. This option allows facilities to only report infection data once instead of reporting separately to both NHSN and the DHSS. The NHSN data downloaded into MHIRS include information for both CLABSIs and SSIs. Currently, all inpatient hospitals have the option of meeting state reporting requirements by reporting through NHSN.

Reporting to the Public

Figure 1 shows the main page of the public reporting site. This page introduces users to the site with a brief overview of the data collected and links to features useful to those researching HAIs in Missouri. From this main page, a user can query infection reporting data by region, look at grouped comparisons of facilities, or view a facility profile. Additional information, such as definitions, frequently asked questions, and links to manuals, laws, and regulations associated with infection reporting in Missouri are also accessible from this main page.

Figure 1. Missouri Healthcare-Associated Infection Reporting

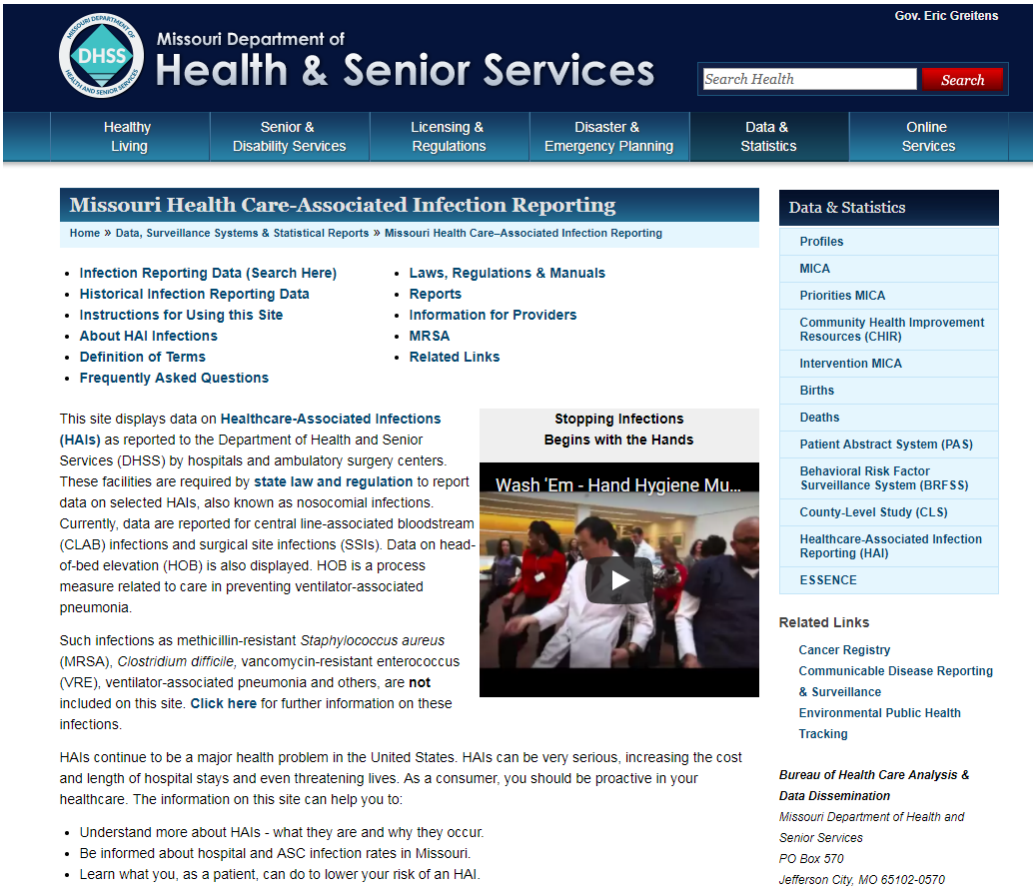
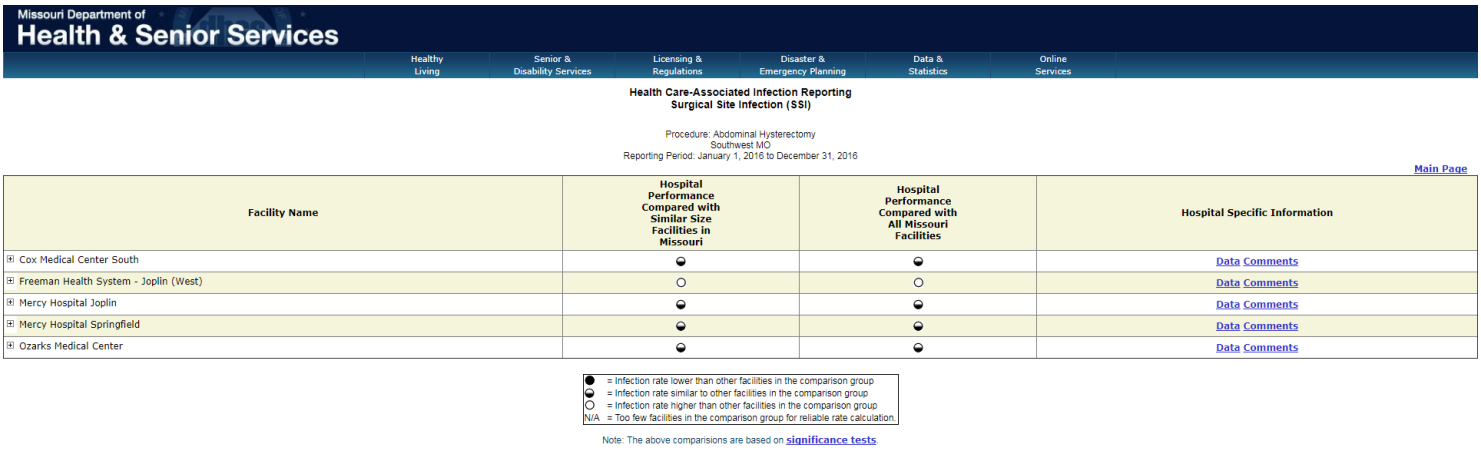


Figure 2 shows the type of data that is available to users wishing to compare infection data of facilities within the same region. Significance tests, based on 95% confidence intervals, determine whether a facility has infection rates that are significantly higher, significantly lower, or not significantly different than other facilities of similar size (categories include under 100 staffed beds, 100-299 staffed beds, and 300+ staffed beds). The same tests are run to compare individual facilities to statewide infection rates. Users can view more specific data, including HAI counts and rates, for each facility and unedited comments submitted by facility administrators by clicking on the hyperlinks included on this page.

Figure 2. Abdominal Hysterectomy Comparison, Southwest Region



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Health Care-Associated Infection Reporting
Surgical Site Infection (SSI)

Procedure: Abdominal Hysterectomy
Southwest MO
Reporting Period: January 1, 2016 to December 31, 2016

Main Page

Facility Name	Hospital Performance Compared with Similar Size Facilities in Missouri	Hospital Performance Compared with All Missouri Facilities	Hospital Specific Information
⊞ Cox Medical Center South	◒	◒	Data Comments
⊞ Freeman Health System - Joplin (West)	○	○	Data Comments
⊞ Mercy Hospital Joplin	◒	◒	Data Comments
⊞ Mercy Hospital Springfield	◒	◒	Data Comments
⊞ Ozarks Medical Center	◒	◒	Data Comments

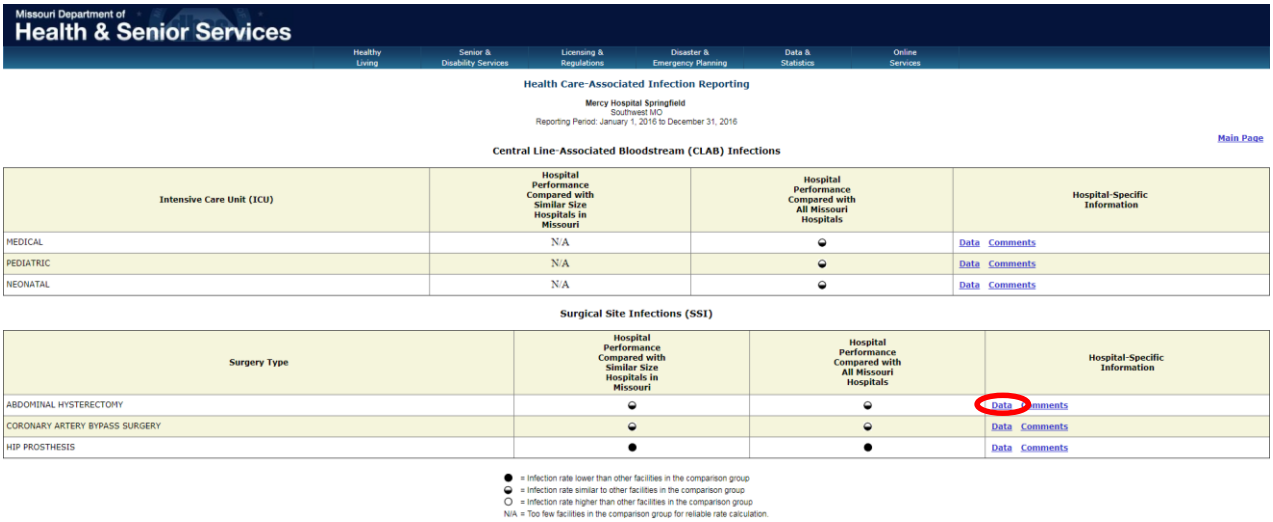
● = Infection rate lower than other facilities in the comparison group
◒ = Infection rate similar to other facilities in the comparison group
○ = Infection rate higher than other facilities in the comparison group
N/A = Too few facilities in the comparison group for reliable rate calculation.

Note: The above comparisions are based on significance tests.

Users also have the option to view a facility profile. As shown in Figure 3, this allows users to view CLABSI and SSI data, as determined by annual reporting requirements. If users choose an ASC Profile they can view data for each procedure type for which the facility is required to report.

"Poor outcomes among patients with nosocomial infections have been linked to higher rates of polymicrobial/multiple sites of infection, higher APACHE II scores, acute respiratory distress syndrome, and co-illnesses."[4] -Dabar, G., et al.

Figure 3. Mercy Hospital Springfield Hospital Profile



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Health Care-Associated Infection Reporting

Mercy Hospital Springfield
Southwest MO
Reporting Period: January 1, 2016 to December 31, 2016

Main Page

Central Line-Associated Bloodstream (CLAB) Infections

Intensive Care Unit (ICU)	Hospital Performance Compared with Similar Size Hospitals in Missouri	Hospital Performance Compared with All Missouri Hospitals	Hospital-Specific Information
MEDICAL	N/A	◒	Data Comments
PEDIATRIC	N/A	◒	Data Comments
NEONATAL	N/A	◒	Data Comments

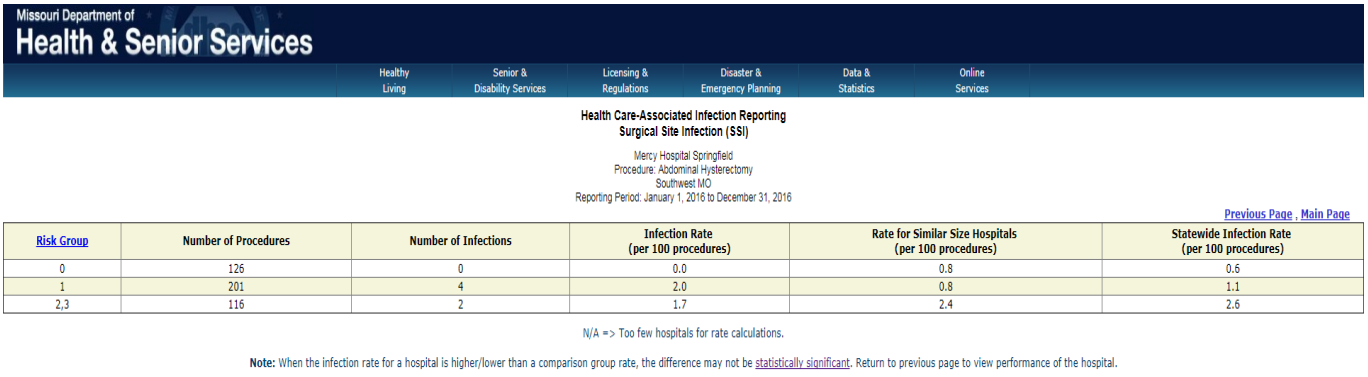
Surgical Site Infections (SSI)

Surgery Type	Hospital Performance Compared with Similar Size Hospitals in Missouri	Hospital Performance Compared with All Missouri Hospitals	Hospital-Specific Information
ABDOMINAL HYSTERECTOMY	◒	◒	Data Comments
CORONARY ARTERY BYPASS SURGERY	◒	◒	Data Comments
HIP PROSTHESIS	●	●	Data Comments

● = Infection rate lower than other facilities in the comparison group
◒ = Infection rate similar to other facilities in the comparison group
○ = Infection rate higher than other facilities in the comparison group
N/A = Too few facilities in the comparison group for reliable rate calculation.

The Profiles page displays significance columns for two comparison groups. Clicking on the 'Data' hyperlink (circled in red above) allows users to view the specific number of infections, denominator data (total number of procedures), and infection rate for the defined reporting period (as shown in Figure 4).

Figure 4. SSI Rates for Abdominal Hysterectomy, Mercy Hospital Springfield



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Health Care-Associated Infection Reporting
Surgical Site Infection (SSI)

Mercy Hospital Springfield
Procedure: Abdominal Hysterectomy
Southwest MO
Reporting Period: January 1, 2016 to December 31, 2016

Previous Page , Main Page

Risk Group	Number of Procedures	Number of Infections	Infection Rate (per 100 procedures)	Rate for Similar Size Hospitals (per 100 procedures)	Statewide Infection Rate (per 100 procedures)
0	126	0	0.0	0.8	0.6
1	201	4	2.0	0.8	1.1
2,3	116	2	1.7	2.4	2.6

N/A => Too few hospitals for rate calculations.

Note: When the infection rate for a hospital is higher/lower than a comparison group rate, the difference may not be statistically significant. Return to previous page to view performance of the hospital.

"…trauma patients with sepsis had a 6-fold higher risk of mortality, whereas patients with other HAIs had a nearly 1.5-2-fold higher mortality compared with patients without an HAI. Furthermore, patients with HAIs had…inpatient costs that were approximately 2-fold higher than patients without HAIs."[5] ***-Glance, L.G., et al.***

Data Summary

Central Line-Associated Bloodstream Infections (CLABSIs)

Some hospitals have only one or two ICUs required to report to the DHSS, while some may have all six ICU types. As such, the total number of reporting ICUs exceeds the total number of hospitals that report. A total of 92 ICUs from 58 hospitals reported CLABSI data for the January 1, 2016 - December 31, 2016 time period. A total of 181 CLABSIs were reported from an aggregate 181,587 central line-days (CLDs). This represents a decrease in infections from 2015. (There were 194 infections that year.) Combined with the increase in central line-days (from 180,637), this resulted in an overall decrease in CLABSI rates statewide in 2016.

Figure 5 shows the number of ICUs reporting to MHIRS in 2016 by type. The medical/surgical ICU type has nearly three times as many facilities reporting as the next largest ICU type.

Figure 5. 2016 CLABSI Reporting by ICU Type

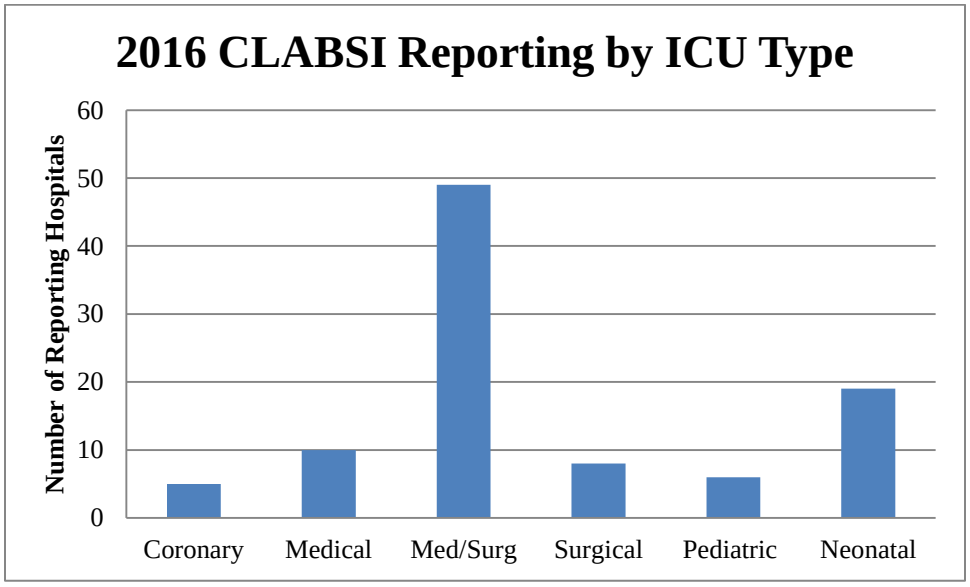


Figure 6 compares CLABSI rates for 2016 and the baseline year of 2011. The percentage differences between the 2016 rate and the baseline ranged from a 47% decrease in pediatric ICUs to a sharp 100% increase in CLABSI rates for surgical ICUs.

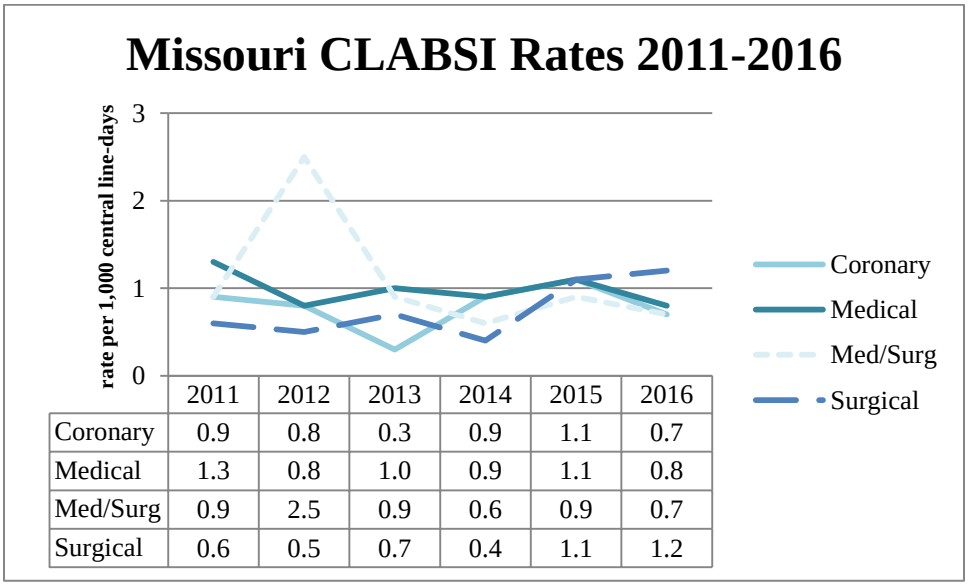
Figure 6. 2016 CLABSI Comparison to Missouri Baseline

Missouri Central Line-Associated Bloodstream Infections (CLABSIs)			
ICU Type	**Missouri Baseline Rate**	**2016 Infection Rate**	**Percentage Difference**
Coronary	0.9	0.7	-22%
Medical	1.3	0.8	-38%
Medical/Surgical	0.9	0.7	-22%
Surgical	0.6	1.2	+100%
Pediatric	3.2	1.7	-47%
Neonatal	1.1	1.4	+27%
Rates are reported per 1,000 central line-days.			

Figures 7 and 8 reflect CLABSI rates for ICUs that primarily serve adults and children, respectively. Figure 7 displays infection rates for the last six years for coronary, medical, medical/surgical and surgical ICUs. Rates for most adult ICU types decreased in 2016 compared to 2015. The only increase was seen in surgical ICUs, where statewide rates continued to increase, from 1.1 to 1.2 (per 1,000 central line days), after seeing a large increase between 2014 and 2015. Rates for coronary, medical, and medical/surgical ICU types stayed relatively stable statewide between 2014 and 2016 and each of the three ICU types had a CLABSI rate lower than the 2011 baseline.

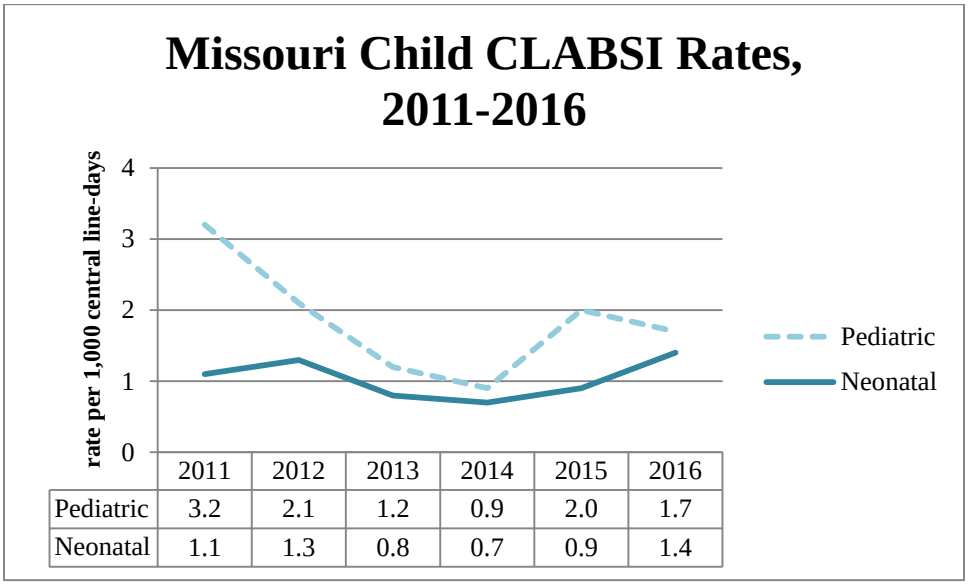
Figure 8 presents CLABSI rates for pediatric and neonatal ICUs. Trends for ICU types treating Missouri's youth were similar to those seen in adult ICUs. The pediatric ICU rate in 2016 decreased from the 2015 four-year high, but was still nearly double the 2014 rate (1.7 compared to 0.9 per 1,000 central line-days). Pediatric ICU infection rates have been consistently higher than Neonatal ICU rates during the six-year comparision period graphed here. The 2016 pediatric rate was down from 2015, but is still nearly double the infection rate in 2014.The neonatal rate increase is concerning since the past two years have seen increases where the rates had previously been in decline. The 2016 reduction in pediatric ICU CLABSI rates represents a significantly decrease from the 2011 baseline.

Figure 7. Missouri Adult CLABSI Rates, 2011-2016



	2011	2012	2013	2014	2015	2016
Coronary	0.9	0.8	0.3	0.9	1.1	0.7
Medical	1.3	0.8	1.0	0.9	1.1	0.8
Med/Surg	0.9	2.5	0.9	0.6	0.9	0.7
Surgical	0.6	0.5	0.7	0.4	1.1	1.2

Figure 8. Missouri Child CLABSI Rates, 2011-2016



	2011	2012	2013	2014	2015	2016
Pediatric	3.2	2.1	1.2	0.9	2.0	1.7
Neonatal	1.1	1.3	0.8	0.7	0.9	1.4

Figure 9 shows the total number of central line-days by ICU type. Medical/surgical ICUs had the highest total frequency (66,232 days), which was nearly double the second highest total, for neonatal ICUs (34,837 days). Coronary ICUs had the lowest total number of days at 10,082. Figure 10 shows the breakdown of the 181 CLABSIs reported in 2016 by ICU type. The largest percentage (35%) came from medical/surgical ICUs. This is to be expected due to the fact that this ICU type also reported the largest number of central line-days. Neonatal ICUs had the second highest percentage of infections, at 26%. The coronary ICU type had the lowest percentage of infections, accounting for only 4% of the aggregate in 2016. In 2014, infections in a surgical ICU accounted for only 5% of the total infections reported; however, increases in 2015 and 2016 have seen that share more than double to 12%.

Figure 9. 2016 CLDs by ICU Type

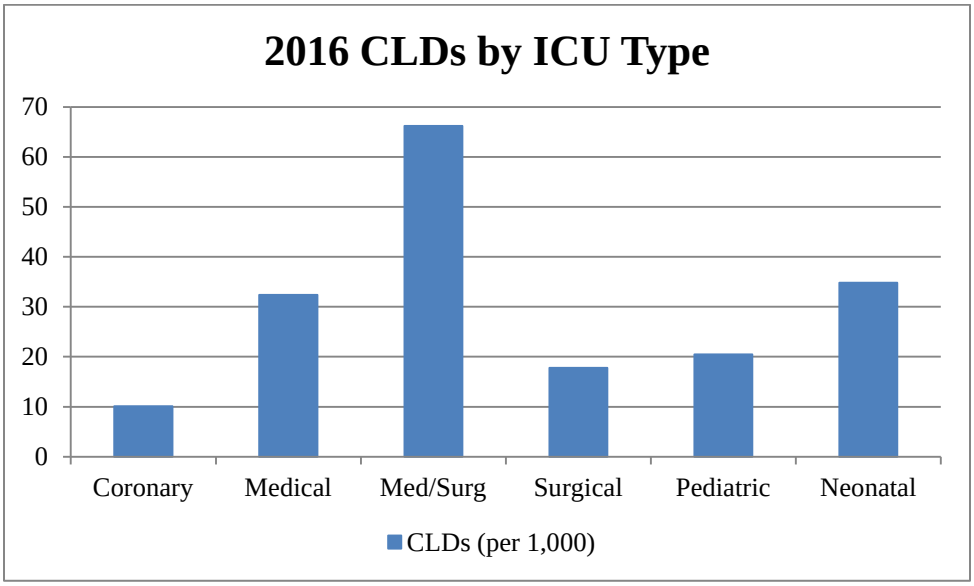
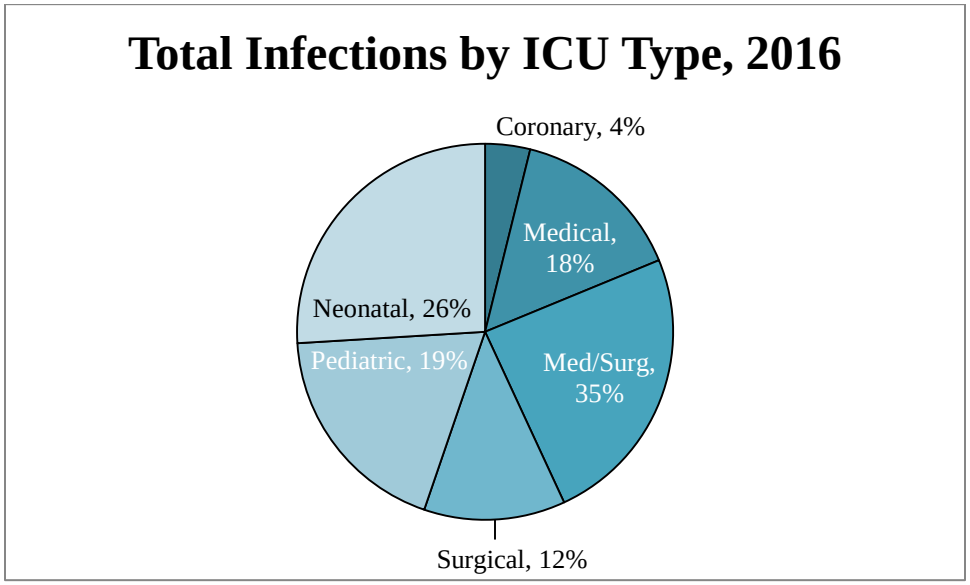


Figure 10. 2016 Total Infections by ICU Type

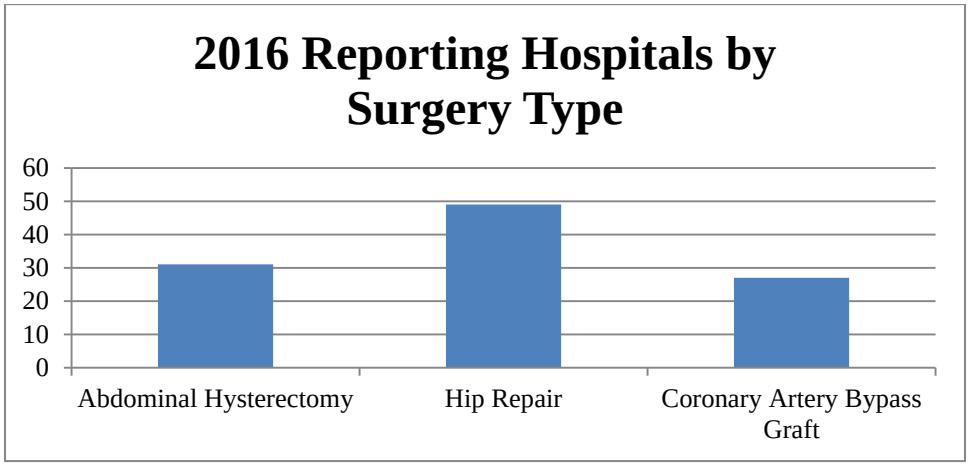


"The risk of CLABSI in ICU patients is high. Reasons for this include the frequent insertion of multiple catheters, the use of specific types of catheters that are almost exclusively inserted in ICU patients and associated with substantial risk (eg, arterial catheters), and the fact that catheters are frequently placed in emergency circumstances, repeatedly accessed each day, and often needed for extended periods."[6]
–Marschall. J.. et al.

Surgical Site Infections (SSIs)

The SSIs reported by hospitals are those associated with procedures for abdominal hysterectomy, hip repair, and coronary artery bypass surgery (with both chest and donor site incisions). Ambulatory surgery centers report only SSI data, and are limited to reporting infections associated with procedures for hernia repair and breast surgery. To provide denominators for the infection rates, hospitals and ASCs report every one of the selected procedures regardless of whether the procedure results in an infection. Both hospitals and ASCs must report SSIs if they performed at least 20 of the specified surgeries in the prior year. All data reported in this section comes from records submitted for the 2016 calendar year.

Figure 11. 2016 Reporting Hospitals by Surgery Type



Hospital SSI reporting by the numbers:

- 50/163 Missouri hospitals met SSI reporting requirements.
- 31 report on abdominal hysterectomies.
- 49 report hip repair procedures.
- 27 report coronary artery bypass surgeries.

Figure 12. 2016 SSI Comparison to Missouri Baseline (Hospitals)

2016 SSI Comparison to Missouri Baseline (Hospitals)

Surgery Type	Missouri Baseline Rate	2016 Infection Rate	Percentage Difference
Abdominal Hysterectomy	1.2	1.2	0%
Hip Repair	1.5	1.0	-33%
Coronary Artery Bypass Graft	1.8	1.3	-28%

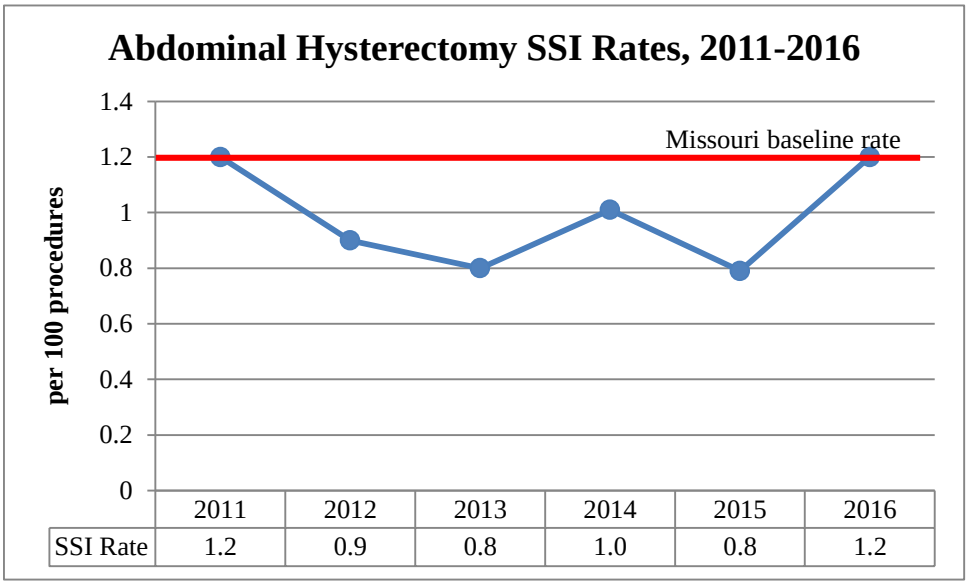
Rates are reported per 100 procedures and are adjusted based on risk group.

Statewide surgical site infection rates (for hospitals) in 2016 showed encouraging trends, much like CLABSI rates. Each procedure type rate experienced either no change or a percentage decrease from the 2011 baseline rate. Healthcare associated infections related to hip repair procedures saw the greatest decrease (-33%). However, abdominal hysterectomy SSI rates increased between 2015 and 2016, though the rate was flat and unchanged from the 2011 baseline data. Of the three surgery types, only hip repair procedures had rate reductions that were statistically significantly different from the 2011 Missouri baseline (Figure 12).

When comparing individual hospital infection rates to overall state HAI rates for abdominal hysterectomies, only two hospitals had infection rates that were significantly higher than the 2016 overall state rate (1.2/100 surgeries). No hospital had an infection rate that was meaningfully lower than the state rate for this surgery type.

The Missouri baseline infection rate for abdominal hysterectomy procedures was 1.2 (per 100 procedures) and statewide rates for 2016 were even with this baseline figure. However, the 2016 rate was the highest abdominal hysterectomy SSI rate since 2011 (Figure 13).

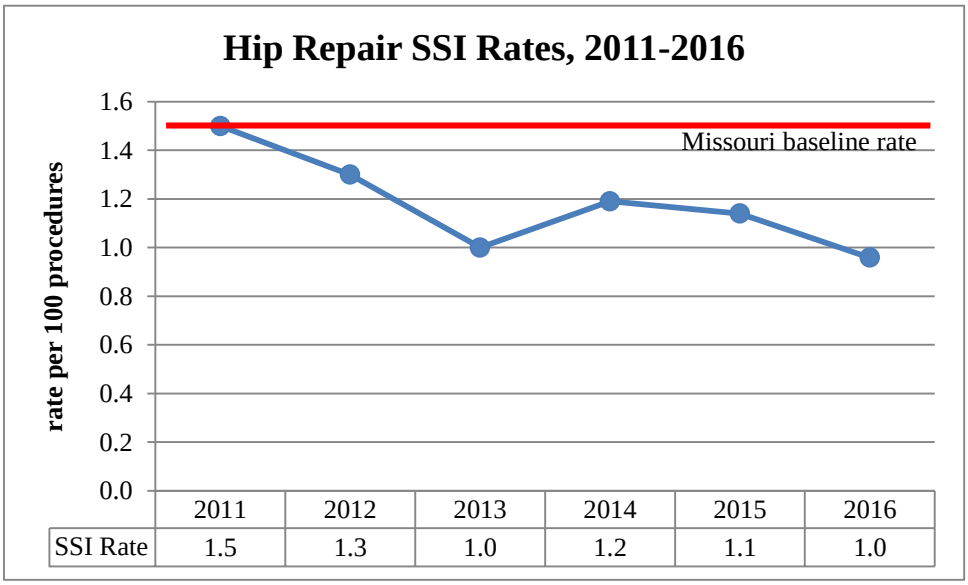
Figure 13. Abdominal Hysterectomy SSI Rates, 2011-2016



Two Missouri hospitals had infection rates that were meaningfully higher than the state rate for hip repair, or hip prosthesis, but three hospitals had rates significantly lower than that average. This is an improvement from 2014 when four hospitals had rates that were meaningfully higher than average.

Hip repair procedures generated a 2011 Missouri baseline infection rate of 1.5 (per 100 procedures). Statewide 2016 rates were one-third lower than this baseline figure, though the difference was not significant. Hip repair SSI rates decreased slightly in 2016 compared to 2015, continuing a three year trend of decrease (Figure 14). In fact, the 2016 rate is the lowest in six years.

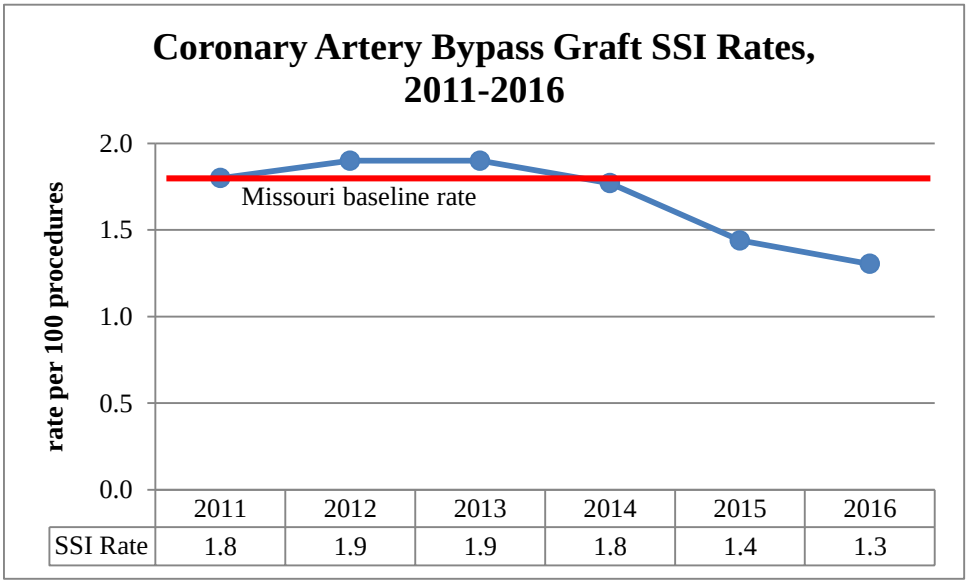
Figure 14. Hip Repair SSI Rates, 2011-2016



The Missouri baseline infection rate for CBGB was 1.8 (per 100 procedures). Statewide rates for 2016 were 28% lower than the baseline figure. Rates for this surgery type have been decreasing steadily since 2013, though there is no significant difference between the 2016 rate and the 2011 baseline (Figure 15).

Despite these reductions, only one Missouri hospital had rates that were significantly lower when comparing 2016 CBGB rates for individual hospitals to the overall state rate.

Figure 15. Coronary Artery Bypass Graft SSI Rates, 2011-2016



Infection rates for ASCs are usually lower than hospitals. ASCs tend to perform less serious surgeries and have generally healthier patient populations than inpatient facilities.[7] The relatively brief stays in the ambulatory setting reduces a patient's risk for infection; it also lessens the possibility of detecting post-surgical infections. A typical patient does not stay very long in an ASC (less than 24 hours) so an infection may not be discovered until days after the surgery. In this situation, the patient is more likely to seek care in an emergency room or a physician's office, and the ASC may never become aware of the infection.

Ambulatory Surgical Center SSI reporting by the numbers:

- 15/119 operating Missouri ASCs met SSI reporting requirements.
- 9 report hernia repair procedures.
- 9 report on breast surgeries.

Figure 16. 2016 Reporting ASCs by Surgery Type

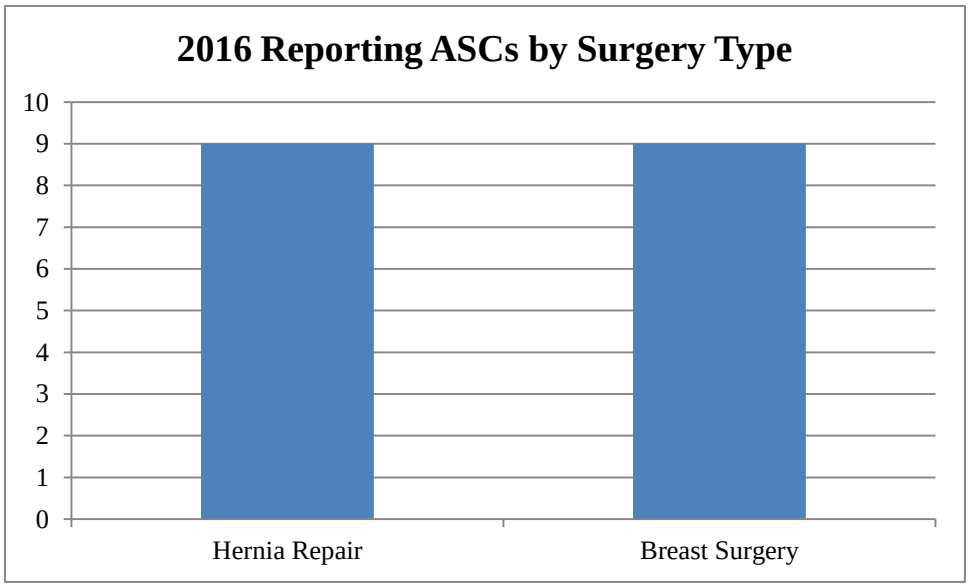
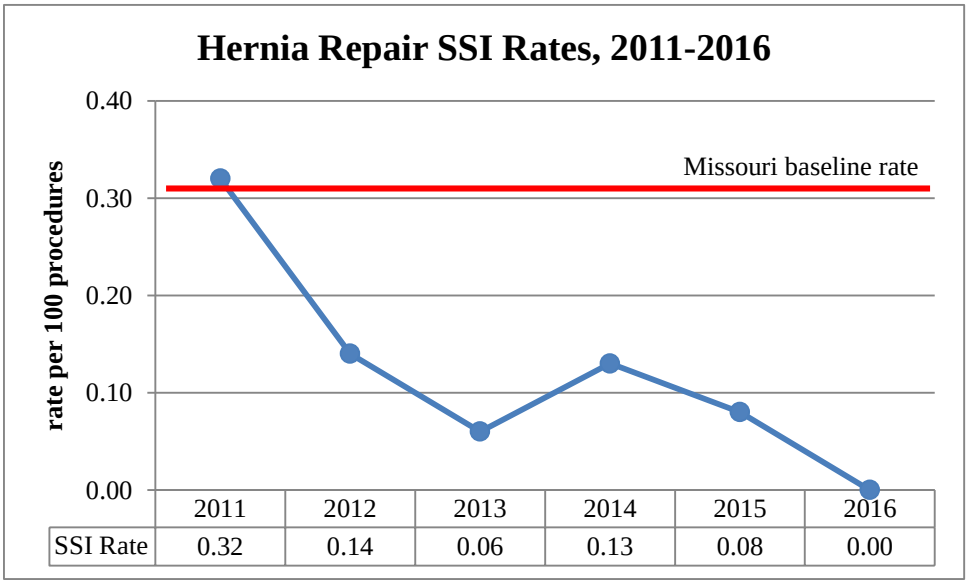


Figure 17. 2016 SSI Comparison to Missouri Baseline (ASCs)

2016 SSI Comparison to Missouri Baseline (ASCs)			
Surgery	**Missouri Baseline Rate**	**2016 Infection Rate**	
Hernia Repair	0.32	0.00	-100%
Breast Surgery	0.18	0.14	-22%
Rates are reported per 100 procedures and are adjusted based on risk group.			

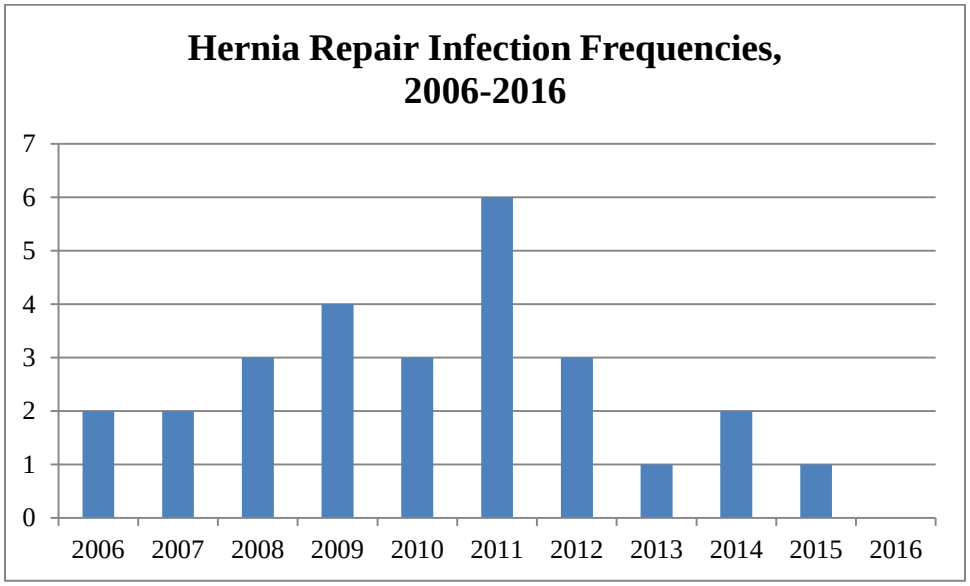
The hernia repair infection rate was 0.00 (per 100 procedures) in 2016. Of the 1,080 hernia repair procedures reported by qualifying ASCs in Missouri, not one surgery resulted in a healthcare associated infection! This continues the steady decrease in SSI rates over time for this infection type (Figure 18).

Figure 18. Hernia Repair SSI Rates, 2011-2016



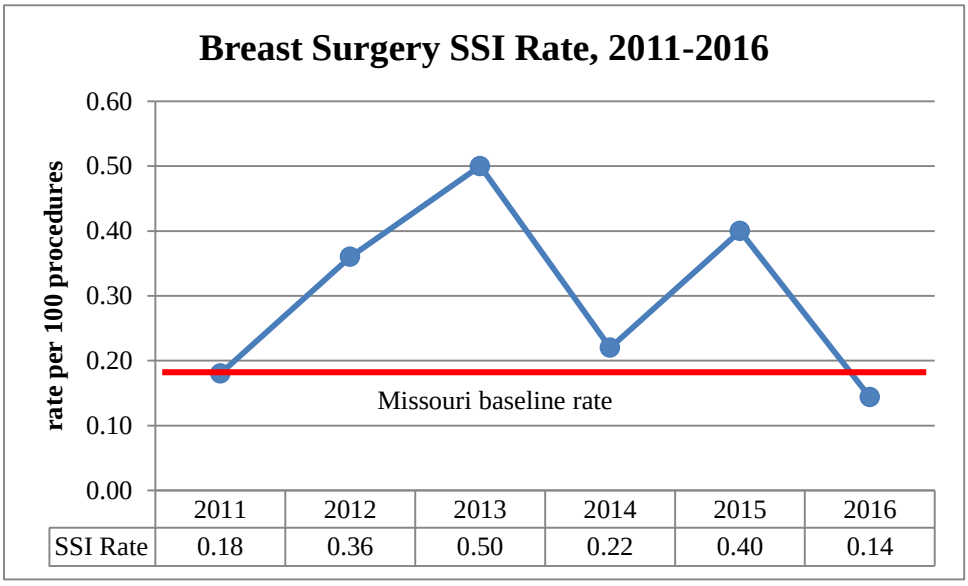
The low frequency of infections associated with hernia repair surgery could partially explain fluctuations in rates from year-to-year. Since Missouri began collecting data on this type of surgery in 2006, there have been only 27 healthcare-associated infections related to this procedure in facilities which met public reporting requirements. To put these frequencies into perspective, in 2011 (the year with the most reported infections), fifteen facilities reported 1,883 hernia repair surgeries (which resulted in six HAIs). A comparable number of procedures (1,757 from 16 facilities) were reported in 2013, with only one HAI associated with hernia repair procedures (Figure 19). Note that frequencies will also fluctuate based on how many facilities meet MHIRS reporting requirements each calendar year, as evidenced by the fact that in 2016 there were 0 reported infections. While this is an achievement to be celebrated, it should also be noted that only 9 ASCs met the threshold for reporting for this procedure (down from 15 in 2011 and 12 in 2015). It is certainly possible that surgical site infections associated with hernia repair did occur in Missouri in 2016, but they were simply not captured in this surveillance system because it occurred in a facility that didn't meet the minimum reporting threshold.

Figure 19. Hernia Repair Infection Frequencies, 2006-2016



The 2016 breast surgery infection rate was 0.14 (per 100 procedures). This represents a decrease from the baseline rate of 0.18, and is the lowest rate since 2011, though the rates are not significantly different (Figure 20).

Figure 20. Breast Surgery SSI Rates, 2011-2016

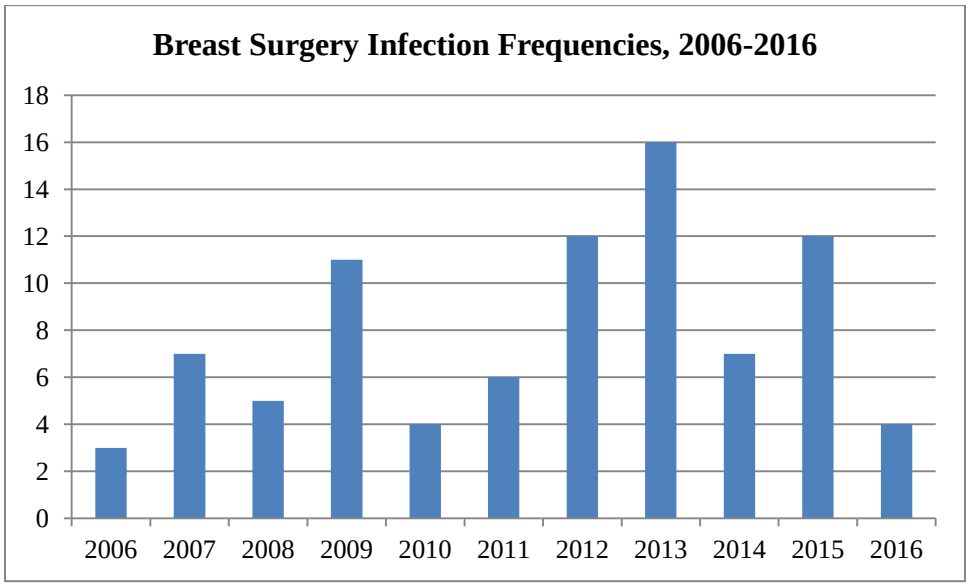


	2011	2012	2013	2014	2015	2016
SSI Rate	0.18	0.36	0.50	0.22	0.40	0.14

Similar to hernia repair surgeries, the relative rareness of HAIs in conjunction with breast surgeries can cause SSI rates to fluctuate greatly from year-to-year. For the past ten calendar years, qualifying ASCs in Missouri have averaged only 8.2 SSIs a year for this procedure (again, this represents only the infections from facilities meeting public reporting requirements). In 2006, seven facilities reported 986 breast surgeries—a relatively low number compared to the 3,230 surgeries reported by 12 facilities in 2013. Only four times in the past ten years

have reported infections for breast surgeries reached double digits. In 2016, infections were only a third of the amount seen in 2015 (Figure 21).

Figure 21. Breast Surgery Infection Frequencies, 2006-2016



Cautions

The infection rates reported by the DHSS are affected by a facility's level of resources and commitment to infection control, the severity of illnesses treated, and the care with which it collects and reports data. Beyond checking for obvious errors, the DHSS is not able to verify the data that the facilities submit each month, and it is likely that some facilities do a more accurate job of reporting than others. On the other hand, it is to each facility's advantage to accurately diagnose and monitor all infections. We believe most, if not all, facilities are guided by this philosophy.

A further consideration is that hospitals and ASCs vary in the types of patients they treat. A facility that treats severely ill patients will be at a higher risk for HAIs. In order to mitigate this effect, CLABSIs are reported separately for each type of ICU and as a rate per 1,000 central-line days. On the public website, SSI comparisons are adjusted for the severity level of the surgery and the condition of the patient and reported as a rate per 100 surgeries. While those adjustments help make the data between facilities more comparable, users of the data should understand that these adjustments are imperfect, and the rates on Missouri's website (and in this report) should not be the sole basis for choosing a healthcare facility. A consumer who is trying to select a facility for healthcare should also consider the experience of the staff, the advice of their physician, and all other factors that are unique to his or her situation.

"In 2010 an estimated 16 million operative procedures were performed in acute care hospitals in the United States and an American prevalence study found that SSIs were the most common healthcare-associated infection, accounting for 31% of all HAIs among hospitalized patients."[8] - Werra, C, et al.

Endnotes

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4. Community- and healthcare- associated infections in critically ill patients: a multicenter cohort study. Dabar, G., Harmouche, C., Salameh, P., et al. International Journal of Infectious Diseases 2015; 37: 80-85

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7. Does competition from ambulatory surgical centers affect hospital surgical output? Courtemanche, C. and Plotzke, M. Journal of Health Economics 2010; 29(5): 765-773.

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